EREMOPHILA STUDY GROUP NEWSLETTER NO. 6 MARCH 1977

It is over two years since I last circulated a newsletter, but the work of the Group has continued and there is much to report. However the membership has grown to the extent that it has become too large for me to keep in close contact with all members and it is only those who have kept in personal contact who have received a fair deal.

NEW LEADER

I am relinquishing the position as leader, as the Group has become too big for me to run efficiently from Owen, and Geoff Needham has offered to take over. I cannot recommend Geoff too highly as your leader; he was growing Eremophila long before the Group began and has been a constant inspiration, so give him all the help you can.

I have enjoyed my time as leader and especially the personal contact with many of you. I hope the visits to "Waldon" will continue and I still hope to meet more of you if I am ever in your areas.

SUMMARY

Just a quick resume of progress to date. The Study Group began from a handful of interested SGAP members who were showing their interest in eremophilas. It now has a membership of 65 with a Newsletter circulation of over 80. About 80 species of Eremophila are being grown, which, including named varieties and variable forms within the species, would be approximately 200 plants; not bad for a genus that was virtually unknown and unprocurable ten years ago.

Several members have presented lectures at SGAP and other meetings to spread the recognition of the genus. I think it says a lot for the Group when interstate air-fares are paid for me to address meetings in Sydney and Melbourne and recently there has been a request for a paper to be delivered to the SGAP Biennial Conference in Perth in August. These invitations reflect Group recognition, not that of individuals.

New collectors have been found and this is such an important part of bringing new plants into cultivation.

A revision of the genus has begun at the Adelaide Herbarium and I think we can claim some of the credit for stimulating the interest to initiate this long overdue work.

In summary, although the Study Group may appear to have been quiet for a couple of years, there has been continued activity. I trust that under new leadership a renewed vitality will emerge and give the Group many more years of active life.

REVISION OF THE GENUS

Bob Chinnock is conducting a revision of the genus at the Adelaide Herbarium. He has isolated nearly 40 new species to date, mostly from W.A., and also combined a few which at present are considered separate or have varietal status. Some of the new ones have already been propagated and names such as E. "versicolor", E. "labrosa", E. "lacerata" and E. "purpurascens" will go on the list of cultivated species in a few years when official descriptions are published.

What is surprising is that several of the proposed new species appear to be relatively common judging by the number of times we have received cuttings, yet they have never been described. A South Australian collection considered doubtful is the E. goodwinii in "Australian Plants", Vol. 1, no. 10, p. 8, 22, and discussed in Newsletter no. 5. Bob

Chinnock considers this to be E. clarkei and doubts if E. goodwinii actually occurs in S.A. If it does it would be near the northern or eastern borders. Others that occur in this State are E. turtonii in the north-west and E. obovata in the north-east, the latter being the E. strongylophylla included with E. rotundifolia in Black's "Flora of South Australia".

Several hybrids have been collected mostly as individual plants: E. maculata X duttonii (Alice Springs, Oodnadatta, and north of Yunta), E. scoparia X oppositifolia (Whyalla), E. pachyphylla X dempsteri (Norseman), E. goodwinii X willsii (Alice Springs, crossed both ways i.e. parents grow in separate colonies a mile apart and hybrids have been collected in both areas), and most interestingly an inter-generic hybrid E. crassifolia X Mypoporum platycarpum from Joe Mack's property at Waikerie.

RECENT FIELD TRIPS

Last year Bob Chinnock made extensive collections in the eastern goldfields and south-western salt lake areas of W.A. and sent back large quantities of cuttings. This year he will be collecting in the northern goldfields of W.A. and north-western New South Wales.

We have struck a winner in Ray Isaacson who joined the group after I gave a talk at Parrakie in the S.A. Murray Mallee. Last year Ray and his wife Bet made a trip through western N.S.W. to Mt. Isa, south-west to Alice Springs, then south back home. We planned a route to locate the few eastern Eremophila not in cultivation. Some of them have a very restricted distribution and Ray found every single one, including two named varieties and adding a completely new species for good measure, a magnificent effort indeed. As we have not succeeded in propagating them all Ray plans to make a reverse trip this year.

Others who have been involved in good field work include Robin and Lesley Lamacraft, Joylene Noble, and Kaye Bartlett, with many others also contributing.

REFERENCE BOOKS

Until recently we have had to rely almost solely on J.M. Black's "Flora of South Australia" and Bentham's "Flora Australiensis", but we now have a couple of other good books. The long-awaited "How to Know Western Australian Wildflowers" Part IV by B.J. Grieve and W.E. Blackall, is now available. This book is an illustrated key with an index key giving distribution and flowering period. It also has several colour plates, including a bright red-flowered E. subfloccosa which necessitates a rethink as we had considered it to be always green-flowered. Another colourplate shows E. drummondii looking very like the one we used to call E. dempsteri. For some time I had considered this to be a form of E. drummondii except that it flowers nearly all the year and has obtuse corolla lobes. Our other E. drummondii (Dr. Barlow numbers 1706, 1710) have very restricted flowering seasons, acute corolla lobes (especially 1706), more upright habit and narrower leaves. It looks as if 1706 can be safely named E. drummondii var. brevis which is a more satisfactory definition than using Dr. Barlow's collecting number.

In addition to the species in this new book, E. ramiflora is described by one of our members, Bernie Dell, in the "Journal of the Royal Society of Western Australia", Vol. 58, part 3, 1975. This magnificent shrub has close affinities with E. fraseri, and its publication explains the two forms of E. fraseri that had been sent over the years. Incidentally, we have yet to establish either of these magnificent shrubs in the eastern half of Australia. The extremely viscid nature of the stems and leaves make these two, as well as two other beautiful species, E. abietina and E. cuneifolia, very difficult.

The Queensland Herbarium has published the work of the late Lindsay Smith as "Contributions from the Queensland Herbarium, No. 19. The Genus Eremophila (Myoporaceae) in Queensland". This was issued in April 1975. It is an extremely valuable small book and was most useful in planning Ray Isaacson's trip.

Canberra Botanic Gardens sent me "A Discussion of the Propagation and Performance of the Genus Eremophila at Canberra Botanic Gardens". There is much of value in it but I will leave it to Geoff Needham to decide how best to use it.

FROM THE MEMBERS

SEED GERMINATION

While it is difficult to select what to include in this Newsletter I think the following tables from Graham Harrington (Deniliquin, N.S.W.) are very interesting.

Seed treatment 1

Fresh seed sown in trays of soil (red loam). Kept at 25°C day, 15°C night. Watered daily but often dried out during the night. Seeds still occasionally germinating after nine months.

Four sowing treatments:-

A. Lying on soil surface

B. Pressed into the soil surface

C. On soil surface and covered with Myoporaceae litter

D. On soil surface and covered with eucalypt litter

Germination (%)

	A	B	C	D
E. sturtii	4	6.5	2	0.5
E. mitchellii	15	8	4.5	3
E. longifolia	0	0	0	0

Seed treatment 2

The same seed as above with the addition of E. bowmanii was treated for 6 months as follows:-

E. In dry sand at a temperature of about 3°C

F. In wet sand at a temperature of about 3°C

G. In a seed envelope at 25°C day 15°C night

H. In a seed envelope at 70°C day 15°C night

Then E. mitchelli and E. sturtii were tested on Wettex pads in covered glass dishes, and E. bowmanii and E. longifolia were sown into the surface of red loam in trays, at 25:15°C. After 3 months the results were:

	E	F	G	H
E. sturtii	1	1	6	0
E. mitchellii	2	0	3	0
E. bowmanii	3	0	15	0
E. longifolia	0	0	0	0

Seed treatment 3

Exactly as seed treatment 2 but the germinating temperature was 15°C(Day):10°C(Night)

	E	F	G	H
E. sturtii	-	1	5	0
E. mitchellii	2	0	2	0

Seed treatment 4

E. glabra and E. maculata. Both had fresh seed pushed into a sandy loam soil and kept permanently wet in a heated glasshouse. Reasonable germination was obtained. Excising the embryos of E. maculata was also attempted by cutting the fruit in half and lifting out the seed. One successful plant was raised from this procedure.

The germination percentage obtained from the above experiments was too low and erratic to place much reliance on the results but certain lessons can be learnt:

a. The germination requirements are mysterious when a seed under constant conditions will germinate for no apparent reason after 9 months.

b. Permanently wet conditions do not seem to be inhibitory and may actually be required.

c. Fresh seed will germinate and these results suggest a loss of viability over the first year.

d. Unlike many arid zone species high storage temperatures do not seem to encourage germination although I have not tried a period of high temperature (summer) followed by cold (winter), and then germination at moderate temperatures (spring).

I think Graham Harrington's results are summed up in the first observation (a); the germination requirements are indeed mysterious. I refer members to Newsletter no. 2 when available knowledge on seed was given and we have not learnt a lot since then.

At Canberra Botanic Gardens some seed has germinated using the method described in "Australian Plants", Vol. 6, p. 111.

GRAFTING

I mentioned this in Newsletter no. 5, and there was no response at the time. Bob Chinnock thinks it has possibilities and has a stock of the northern low-growing E. maculata waiting for his Western Australian trip later this year. He plans to have the stock at about 1 cm diameter which seems rather thick and woody to me, but that is probably a debatable point even among experts.

Doris Phelps reports that a friend has successfully grafted E. santalina onto E. bignoniiflora stock with a 60% success rate. No details of method were available but E. bignoniiflora was suggested as a stock in Newsletter no. 5.

An alternative may be to use a Myoporum sp. e.g. M. insulare. It is tough and easy. Any comments? Any volunteers?

Perhaps in closing, a brief report on my property "Waldon" as many of you have been here. The last two years have been quite disheartening especially 1976 when drought, frost, hail, and grass-hoppers, made a lethal combination. Young plants recovered from one setback only to succumb to the next. Two forms of E. bowmanii, E. rotundifolia, various forms of E. latrobei, E. willsii, E. goodwinii, E. gilesii, E. punicea, and E. clarkei, are just some of the young ones to go. The continued dryness has induced

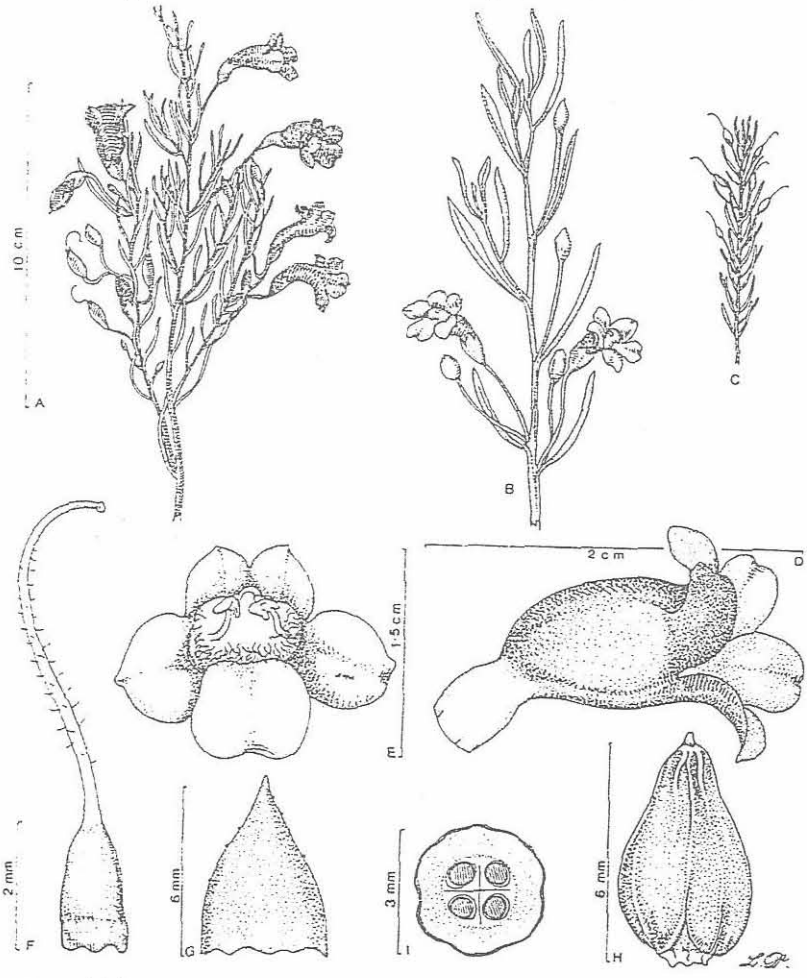
severe, and in some cases fatal, chlorosis in the area near the house. Cattle broke off E. exotrachys at 60 cm when in heavy bud, and wind has broken off two plants (Kings Park no. 101, and no. 102). A special plant was E. leucophylla, over 30 cm high and just finished a good flowering, with plump fruit setting and good cuttings maturing, but a single heavy frost completely debarked it and cuttings failed, so that one is lost again.

More cheerfully I have at least got another E. pentaptera going from my sickly five year old, third generation plant. This species has only been found twice in the field so we will hope to build up numbers this time.

One of my memories of 1976 is a visit to the Loxton Viticulture Research Station with Len Richardson. Outside one of the main buildings a bed approximately 15 x 5 m had been closely planted with the prostrate yellow flowered E. glabra from Mingenew. The bed was watered enough to support a lush cover of foliage with flowers nearly touching in parts. Four plants of the white-foliaged, red-flowered, Murchison River form of E. glabra had been planted among them. The result was a spectacular display of red and white, green and gold. Yes, we have chosen a good genus!

From Ray Isaacson's and Bob Chinnock's trips we have many new plants to try for the first time, including E. willsii (two forms), E. resinosa, E. saligna, more E. exotrachys, the new species listed earlier, and several others, so 1977 looks like being a year of continued progress.

Thank you for the opportunity of leading you in an on and off sort of way for the past five years and my best wishes to the Group in the future.



Eremophila drummondii

A-C, habit of narrow and broad-leaved forms; D-E, side and front view of corolla; F, gynoecium; G, portion of outside surface of sepal; H-I, side view of cross-section of fruit.